

SEQUENCE LISTING

<110> Petroziello, Joseph M.
Law, Che-Leung
Yamane, Andrew K.
Wahl, Alan F.

<120> Cancer Associated Antigens, SGA-56M and
SGA-56Mv, and Uses Thereof

<130> 2681-1-001/PCT

<140> PCT/US03/28676

<141> 2003-09-12

<150> US 60/410,0418

<151> 2002-09-12

<160> 28

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 2917

<212> DNA

<213> Homo Sapiens

<400> 1

acctgagtaa	gagcttgga	aagttgagcc	ctcttcgaga	gaaattggaa	gaacagttta	60
agaggctgct	attccaaaaa	gctttcaact	ctcagcagtt	agttcatgtc	attgtcatta	120
acctgtttca	acttcatcac	cttcgtgact	ttagcaatga	aaccgagcag	cacacttata	180
gccaagatga	gcagctatgt	tggaacacagt	tgctggccct	ctttatgtct	tttcttggca	240
tcctgtgcaa	gtgtcctcta	cagaatgagt	ctcaggagga	gtcctacaat	gcctatcctc	300
ttccagcagt	caaggtctcc	atggactggc	taagactcag	acccagggtc	tttcaggagg	360
cagtggtgga	tgaaagacag	tacatttggc	cctggttgat	ttctcttctg	aatagtttcc	420
atcccatga	agaggacctc	tcaagtatta	gtgcgacacc	acttccagag	gagtttgaat	480
tacaaggatt	tttggcattg	agaccttctt	tcaggaaactt	ggatttttcc	aaaggtcacc	540
aggggtattac	agggggacaaa	gaaggccagc	aacgacgaat	acgacagcaa	cgcttgatct	600
ctataggcaa	atggattgct	gataatcagc	caaggctgat	tcagtgtgaa	aatgaggtag	660
ggaaattggt	gtttatcaca	gaaatcccag	aattaatact	ggaagacccc	agtgaagcca	720
aagagaacct	cattctgcaa	gaaacatctg	tgatagagtc	gctggctgca	gatgggagcc	780
cagggtctaa	atcagtgtta	tctacaagcc	gaaattttaag	caacaactgt	gacacaggag	840
agaagccagt	ggttaccttc	aaagaaaaaca	ttaagacacg	agaagtgaac	agagaccaag	900
gaagaagttt	tcctcccaaa	gaggtgagaa	gggactatag	caaaggaata	actgtaaacta	960
agaatgatgg	aaagaaggac	aacaacaaga	ggaaaactga	aaccaagaaa	tgcaccttag	1020
aaaagttaca	ggaaacagga	aagcagaatg	tggcagtgca	ggtaaaatcc	cagacagaa	1080
taagaaagac	tccagtgtct	gaagccagaa	aaacacctgt	aactcaaacc	ccaactcaag	1140
caagtaactc	ccagttcatc	cccattcatc	accctggagc	cttccctcct	cttcccagca	1200
ggccagggtt	tccgccccca	acatatgtta	tccccccgcc	tgtggcattt	tctatgggct	1260
caggttacac	cttcccagct	ggtgtttctg	tcccaggaa	ctttcttcag	cctacagctc	1320
actctccagc	aggaaaccag	gtgcaagctg	ggaaacagtc	ccacattcct	tacagccagc	1380
aacggccctc	tggaccaggg	ccaatgaacc	agggacctca	acaatcacag	ccaccttccc	1440
agcaaccctt	tacatcttta	ccagctcagc	caacagcaca	gtctacaagc	cagctgcagg	1500
ttcaagctct	aactcagcaa	caacaatccc	ctacaaaagc	tgtgccggct	ttggggaaaa	1560
gccccgctca	ccactctgga	ttccagcagt	atcaacaggc	agatgcctcc	aaacagctgt	1620
ggaatcccc	tcaggttcaa	ggtccattag	ggaaaattat	gcctgtgaaa	cagccctact	1680
accttcagac	ccaagacccc	ataaaaactgt	ttgagccgtc	attgcaacct	cctgtaatgc	1740
agcagcagcc	tctagaaaaa	aaaatgaagc	cttttcccat	ggagccatat	aaccataatc	1800
cctcagaagt	caaggtccca	gaattctact	gggattcttc	ctacagcatg	gctgataaca	1860

BEST AVAILABLE COPY

gatctgtaat	ggcacagcaa	gcaaacatag	accgcagggg	caaacgggtca	ccaggagtct	1920
tccgtccaga	gcaggatcct	gtacccagaa	tgccgtttga	gaaatcctta	ttggagaagc	1980
cctcagagct	catgtcacat	tcattcctct	tcctgtccct	caccggattc	tctctcaatc	2040
aggaaagata	cccaaataat	agtatgttca	atgaggtata	tgggaaaaac	ctgacatcca	2100
gtcctaaagc	agaactcagt	ccctcaatgg	ccccccagga	aacatctctg	tattcccttt	2160
ttgaagggac	tccgtgggtct	ccatcacttc	ctgccagttc	agatcattca	acaccagcca	2220
gccagtctcc	tcattcctct	aacccaagca	gcctaccagg	ctctcctcca	acacacaacc	2280
ataattctgt	tccattctcc	aatttttgac	ccattggggac	tccagataac	agggatagaa	2340
ggactgcaga	tcgggtggaaa	actgataagc	cagccatggg	tgggtttggc	attgattatc	2400
tctcagcaac	gtcatcctct	gagagcagtt	ggcatcaggc	cagcactccg	agtggcacct	2460
ggacaggcca	tggcccttcc	atggaggatt	cctctgtctgt	cctcatggaa	agcctaaagt	2520
ctatctggtc	cagttccatg	atgcatacctg	gaccttctgc	tctggagcag	ctgttaatgc	2580
agcagaagca	gaaacagcaa	cggggacaaag	gcaccatgaa	ccctccacac	tgaggccaaa	2640
gtggcaacct	gggaatgaag	gtcccataaa	ccatggcatg	ttgggtttgc	aggactggcc	2700
cacacagtcc	cctgcaggtg	gcagccctct	tttctgtttc	tcgctgtcaa	gagggtgtaa	2760
gtattccacc	agcccgtctga	gtgtgcacga	aatgttcgca	gtgcaacaaa	aagaaaaatc	2820
catcaggaac	tctccgtccc	cccggggcct	tccggaggga	gagagagagg	aactgctggt	2880
tatctcactc	agttacttgg	tatcaccgcc	tctcacc			2917

<210> 2

<211> 2406

<212> DNA

<213> Homo Sapiens

<400> 2

atgtcttttc	ttggcctcct	gtgcaagtgt	cctctacaga	atgagtctca	ggaggagtcc	60
tacaatgcct	atcctcttcc	agcagtcaag	gtctccatgg	actggctaag	actcagaccc	120
agggctcttc	aggaggcagt	ggtggatgaa	agacagtaca	tttggccctg	gttgatttct	180
ctttctgaata	gtttccatcc	ccatgaagag	gacctctcaa	gtattagtgc	gacaccactt	240
ccagaggagt	ttgaattaca	aggatttttg	gcattgagac	cttctttcag	gaacttggat	300
ttttccaaag	gtcaccaggg	tattacaggg	gacaaagaag	gccagcaacg	acgaatacga	360
cagcaacgct	tgatctctat	aggcaaatgg	attgctgata	atcagccaag	gctgattcag	420
tgtgaaaatg	aggtagggaa	attgtttggt	atcacagaaa	tcccagaatt	aatactggaa	480
gaccccagtg	aagccaaaga	gaacctcatt	ctgcaagaaa	catctgtgat	agagtcgctg	540
gctgcagatg	ggagcccagg	gctaaaatca	gtgctatcta	caagccgaaa	tttaagcaac	600
aactgtgaca	caggagagaa	gccagtgggt	accttcaaag	aaaacattaa	gacacgagaa	660
gtgaacagag	accaaggaa	aagttttctt	cccaaagagg	tgagaaggga	ctatagcaaa	720
ggaataactg	taactaagaa	tgatggaaa	aaggacaaca	acaagaggaa	aactgaaacc	780
aagaaatgca	ccttagaaaa	gttacaggaa	acaggaaaagc	agaatgtggc	agtgcaggta	840
aaatcccaga	cagaactaag	aaagactcca	gtgtctgaag	ccagaaaaac	acctgtaact	900
caaaccctca	ctcaagcaag	taactcccag	ttcatcccca	ttcatcacc	tggagccttc	960
cctcctcttc	ccagcaggcc	agggtttccg	cccccaacat	atgttatccc	ccgcctgtg	1020
gcattttcta	tgggctcagg	ttacaccttc	ccagctgggtg	tttctgtccc	aggaaacctt	1080
cttcagccta	cagctcactc	tccagcagga	aaccaggtgc	aagctgggaa	acagtccac	1140
attccttaca	gccagcaacg	gccctctgga	ccagggccaa	tgaaccaggg	acctcaacaa	1200
tcacagccac	cttcccagca	acctcttaca	tctttaccag	ctcagccaac	agcagctct	1260
acaagccagc	tgcaggttca	agctctaact	cagcaacaac	aatccccctac	aaaagctgtg	1320
ccggcttttg	ggaaaagccc	gcctcaccac	tctggattcc	agcagtatca	acaggcagat	1380
gcctccaaac	agctgtggaa	tccccctcag	gttcaaggtc	cattagggaa	aattatgcct	1440
gtgaaacagc	cctactacct	tcagacccaa	gaccccataa	aactgtttga	gccgtcattg	1500
caacctcctg	taatgcagca	gcagcctcta	gaaaaaaaaa	tgaagccttt	tcccattggag	1560
ccatataacc	ataatccctc	agaagtcaag	gtcccagaat	tctactggga	ttcttcctac	1620
agcatggctg	ataacagatc	tgtaatggca	cagcaagcaa	acatagaccg	caggggcaaa	1680
cggtcaccag	gagtcttccg	tccagagcag	gatcctgtac	ccagaatgcc	gtttgagaaa	1740
tccttatttg	agaagccctc	agagctcatg	tcacattcat	cctctttcct	gtccctcacc	1800
ggatttcttc	tcaatcagga	aagataccca	aataatagta	tgttcaatga	ggatatggg	1860
aaaaacctga	catccagctc	caaagcagaa	ctcagtcctt	caatggcccc	ccaggaaaca	1920
tctctgtatt	ccctttttga	agggactccg	tggctctccat	cacttctctgc	cagttcagat	1980
cattcaacac	cagccagcca	gtctcctcat	tctcttaacc	caagcagcct	acccagctct	2040
cctccaacac	acaaccataa	ttctgttcca	ttctccaatt	ttggacccat	tgggactcca	2100
gataacaggg	atagaaggac	tgcagatcgg	tggaaaactg	ataagccagc	catgggtggg	2160

tttggcattg	attatctctc	agcaacgtca	tcctctgaga	gcagttggca	tcaggccagc	2220
actccgagtg	gcacctggac	aggccatggc	ccttccatgg	aggattcctc	tgctgtcctc	2280
atggaaagcc	taaagtctat	ctgggtccagt	tccatgatgc	atcctggacc	ttctgctctg	2340
gagcagctgt	taatgcagca	gaagcagaaa	cagcaacggg	gacaaggcac	catgaaccct	2400
ccacac						2406

<210> 3
 <211> 2779
 <212> DNA
 <213> Homo Sapiens

<400> 3						
acctgagtaa	gagcttggaa	aagttgagcc	ctcttcgaga	gaaattggaa	gaacagttta	60
agaggctgct	attccaaaaa	gctttcaact	ctcagcagtt	agttcatgtc	attgtcatta	120
acctgtttca	acttcatcac	cttcgtgact	ttagcaatga	aaccgagcag	cacacttata	180
gccaaagtga	gcagctatgt	tggacacagt	tgctggccct	ctttatgtct	tttcttggca	240
tcctgtgcaa	gtgtcctcta	cagaatgagt	ctcaggagga	gtcctacaat	gcctatcctc	300
ttccagcagt	caaggtctcc	atggactggc	taagactcag	acccagggtc	tttcaggagg	360
cagtgggtgga	tgaaagacag	tacatttggc	cctggttgat	ttctcttctg	aatagtttcc	420
atccccatga	agaggacctc	tcaagtatta	gtgcgacacc	acttccagag	gagtttgaat	480
tacaaggatt	tttggcattg	agaccttctt	tcaggaactt	ggatttttcc	aaaggtcacc	540
aggggtattac	agggggacaaa	gaaggccagc	aacgacgaat	acgacagcaa	cgcttgatct	600
ctataggcaa	atggattgct	gataatcagc	caaggctgat	tcagtgtgaa	aatgaggtag	660
ggaaattgtt	gtttatcaça	gaaatccag	aattaatact	ggaagacccc	agtgaagcca	720
aagagaacct	cattctgcaà	gaaacatctg	tgatagagtc	gttggctgca	gatgggagcc	780
cagggtctaaa	atcagtgccta	tctacaagcc	gaaattttaag	caacaactgc	gacacaggag	840
agaagccagt	ggttaccttc	aaagaaaaaca	ttaagacacg	agaagtgaac	agagaccaag	900
gaagaagttt	tcctcccaaa	gaggtaaaat	cccagacagg	actaagaaag	actccagtgt	960
ctgaagccag	aaaaacacct	gtaactcaaa	ccccaaactca	agcaagtaac	ttccagttca	1020
tccccattca	tcaccctgga	gccttccctc	ctcttcccag	caggccagggt	tttccgcccc	1080
caacatatgt	tatccccccg	cctgtggcat	tttctatggg	ctcagggttac	accttcccag	1140
ctggtgtttc	tgtcccagga	acctttcttc	agcctacagc	tcactctcca	gcaggaaaacc	1200
aggtgcaagc	tgggaaacag	tcccacattc	cttacagcca	gcaacggccc	tctggaccag	1260
ggccaatgaa	ccagggaacct	caacaatcac	agccaccttc	ccagcaacct	cttacatctt	1320
taccagctca	gccaacagca	cagctctaca	gccagctgca	ggttcaagct	ctaactcagc	1380
aacaacaatc	ccctacaaaa	gctgtgccgg	ctttgggggaa	aagcccgcct	caccactctg	1440
gattccagca	gtatcaacag	gcagatgcct	ccaaacagct	gtggaatccc	cctcaggttc	1500
aaggcccat	agggaaaatt	atgcctgtga	aacagcccta	ctaccttcag	acccaagacc	1560
ccataaaact	gtttgagccg	tcattgcaac	ctcctgtaat	gcagcagcag	cctctagaaa	1620
aaaaaatgaa	gccttttccc	atggagccat	ataaccataa	tccctcagaa	gtcaagggtcc	1680
cagaattcta	ctgggattct	tcctacagca	tggttgataa	cagatctgta	atggcacaac	1740
aagcaaacat	agaccgcagg	ggcaaacggt	caccaggagt	cttccgtcca	gagcaggatc	1800
ctgtacccag	aatgccgttt	gagaaatcct	tattggagaa	gccctcagag	ctcatgtcac	1860
attcatcctc	tttctgttcc	ctcaccggat	tctctctcaa	tcaggaaaga	tacccaaata	1920
atagtatgtt	caatgaggta	tatgggaaaa	acctgacatc	cagctccaaa	gcagaactca	1980
gtccctcaat	ggccccccag	gaaacatctc	tgtattccct	ttttgaaggg	actccgtggt	2040
ctccatcact	tcctgcccagt	tcagatcatt	caacaccagc	eagccagtct	cctcatttct	2100
ctaaccceaag	cagcctaccc	agctctcctc	caacacacaa	ccataattct	gttccattct	2160
ccaatttttg	acccattggg	actccagata	acagggatag	aaggactgca	gatcggtgga	2220
aaactgataa	gccagccatg	ggtgggtttg	gcattgatta	tctctcagca	acgtcatcct	2280
ctgagagcag	ttggcatcag	gccagcactc	cgagtggcac	ctggacaggc	catggccctt	2340
ccatggaggga	ttcctctgtc	gtcctcatgg	aaagcctaaa	gtctatctgg	tccagttcca	2400
tgatgcatacc	tggaccttct	gctctggagc	agctgttaat	gcagcagaag	cagaaacagc	2460
aacgggggaca	aggcaccatg	aaccctccac	actgaggcca	aagtggcaac	ctgggaatga	2520
aggctccata	aaccatggca	tgttgggttt	gcaggactgg	cccacacagt	ccctgcagg	2580
tggcagccct	cttttctgtt	tctcgtgtgc	aagaggggtg	aagtattcca	ccagcccgtc	2640
gagtgtgcac	gaaatgttcg	cagtgcacaa	aaaagaaaaa	tccatcagga	actctccgtc	2700
cccccggggc	cttccggagg	gagagagaga	ggaactgctg	tttatctcac	tcagttactt	2760
ggtatcaccc	cctctcacc					2779

<210> 4
 <211> 2268
 <212> DNA
 <213> Homo Sapiens

<400> 4

atgtcttttc	ttggcatcct	gtgcaagtgt	cctctacaga	atgagtctca	ggaggagtcc	60
tacaatgcct	atcctcttcc	agcagtcaag	gtctccatgg	actggctaag	actcagaccc	120
agggtctttc	aggaggcagt	ggtggatgaa	agacagtaca	tttggccctg	gttgatttct	180
cttctgaata	gtttccatcc	ccatgaagag	gacctctcaa	gtattagtgc	gacaccactt	240
ccagaggagt	ttgaattaca	aggatttttg	gcattgagac	cttctttcag	gaacttggat	300
ttttccaaag	gtcaccaggg	tattacaggg	gacaaagaag	gccagcaacg	acgaatacga	360
cagcaacgct	tgatctctat	aggcaaatgg	attgctgata	atcagccaag	gctgattcag	420
tgtgaaaatg	aggtagggaa	attgttgttt	atcacagaaa	tcccagaatt	aatactggaa	480
gaccccagtg	aagccaaaga	gaacctcatt	ctgcaagaaa	catctgtgat	agagtcgttg	540
gctgcagatg	ggagcccagg	gctaaaatca	gtgctatcta	caagccgaaa	tttaagcaac	600
aactgcgaca	caggagagaa	gccagtgggt	accttcaaag	aaaacattaa	gacacgagaa	660
gtgaacagag	accaaggaag	aagttttctc	cccaaagagg	taaaatccca	gacaggacta	720
agaaagactc	cagtgtctga	agccagaaaa	acacctgtaa	ctcaaaccct	aactcaagca	780
agtaactccc	agttcatccc	cattcatcac	cctggagcct	tccctcctct	tcccagcagg	840
ccagggtttc	cgcccccaac	atatgttatc	cccccgctg	tggcattttc	tatgggctca	900
ggttacacct	tcccagctgg	tgtttctgtc	ccaggaacct	ttcttcagcc	tacagctcac	960
tctccagcag	gaaaccaggt	gcaagctggg	aaacagtccc	acattcctta	cagccagcaa	1020
cggccctctg	gaccagggcc	aatgaaccag	ggacctcaac	aatcacagcc	accttcccag	1080
caacccttta	catctttacc	agctcagcca	acagcacagt	ctacaagcca	gctgcagggt	1140
caagctctaa	ctcagcaaca	acaatccctc	acaaaagctg	tgccggcttt	gggaaaaagc	1200
ccgcctcacc	actctggatt	cagcagctat	caacaggcag	atgcctccaa	acagctgtgg	1260
aatccccctc	aggttcaagg	cccattaggg	aaaattatgc	ctgtgaaaca	gccctactac	1320
cttcagaccc	aagaccccat	aaaactgttt	gagccgtcat	tgcaacctcc	tgtaatgcag	1380
cagcagcctc	tagaaaaaaa	aatgaagcct	tttcccatgg	agccatataa	ccataatccc	1440
tcagaagtca	aggctcccaga	attctactgg	gattcttctc	acagcatggc	tgataacaga	1500
tctgtaatgg	cacaacaagc	aaacatagac	cgcaggggca	aacggtcacc	aggagtcttc	1560
cgtccagagc	aggatcctgt	accagaatg	ccgtttgaga	aatccttatt	ggagaagccc	1620
tcagagctca	tgtcacattc	atcctctttc	ctgtccctca	ccggattctc	tctcaatcag	1680
gaaagatacc	caaataatag	tatgttcaat	gaggtatatg	ggaaaaacct	gacatccagc	1740
tccaaagcag	aactcagtec	ctcaatggcc	ccccaggaaa	catctctgta	ttcccttttt	1800
gaagggactc	cgtggtctcc	atcacttctc	gccagttcag	atcattcaac	accagccagc	1860
cagtctcctc	attcctctaa	cccaagcagc	ctaccagct	ctcctccaac	acacaacat	1920
aattctgttc	cattctccaa	ttttggaccc	attgggactc	cagataacag	ggatagaagg	1980
actgcagatc	ggtggaaaac	tgataagcca	gccatgggtg	ggtttggcat	tgattatctc	2040
tcagcaacgt	catcctctga	gagcagttgg	catcaggcca	gcactccgag	tggcacctgg	2100
acaggccatg	gcccttccat	ggaggattcc	tctgctgtcc	tcatggaaaag	cctaaagtct	2160
atctggtcca	gttccatgat	gcacctctga	ccttctgtct	tggagcagct	gttaatgcag	2220
cagaagcaga	aacagcaacg	gggacaaggc	accatgaacc	ctccacac		2268

<210> 5
 <211> 802
 <212> PRT
 <213> Homo Sapiens

<400> 5

Met	Ser	Phe	Leu	Gly	Ile	Leu	Cys	Lys	Cys	Pro	Leu	Gln	Asn	Glu	Ser
1				5					10					15	
Gln	Glu	Glu	Ser	Tyr	Asn	Ala	Tyr	Pro	Leu	Pro	Ala	Val	Lys	Val	Ser
			20					25					30		
Met	Asp	Trp	Leu	Arg	Leu	Arg	Pro	Arg	Val	Phe	Gln	Glu	Ala	Val	Val
		35					40					45			
Asp	Glu	Arg	Gln	Tyr	Ile	Trp	Pro	Trp	Leu	Ile	Ser	Leu	Leu	Asn	Ser
	50					55				60					
Phe	His	Pro	His	Glu	Glu	Asp	Leu	Ser	Ser	Ile	Ser	Ala	Thr	Pro	Leu
65					70					75				80	

Pro	Glu	Glu	Phe	Glu	Leu	Gln	Gly	Phe	Leu	Ala	Leu	Arg	Pro	Ser	Phe	
				85					90					95		
Arg	Asn	Leu	Asp	Phe	Ser	Lys	Gly	His	Gln	Gly	Ile	Thr	Gly	Asp	Lys	
			100					105					110			
Glu	Gly	Gln	Gln	Arg	Arg	Ile	Arg	Gln	Gln	Arg	Leu	Ile	Ser	Ile	Gly	
		115					120					125				
Lys	Trp	Ile	Ala	Asp	Asn	Gln	Pro	Arg	Leu	Ile	Gln	Cys	Glu	Asn	Glu	
	130					135					140					
Val	Gly	Lys	Leu	Leu	Phe	Ile	Thr	Glu	Ile	Pro	Glu	Leu	Ile	Leu	Glu	
145					150					155					160	
Asp	Pro	Ser	Glu	Ala	Lys	Glu	Asn	Leu	Ile	Leu	Gln	Glu	Thr	Ser	Val	
				165					170					175		
Ile	Glu	Ser	Leu	Ala	Ala	Asp	Gly	Ser	Pro	Gly	Leu	Lys	Ser	Val	Leu	
			180				185						190			
Ser	Thr	Ser	Arg	Asn	Leu	Ser	Asn	Asn	Cys	Asp	Thr	Gly	Glu	Lys	Pro	
		195					200					205				
Val	Val	Thr	Phe	Lys	Glu	Asn	Ile	Lys	Thr	Arg	Glu	Val	Asn	Arg	Asp	
	210					215					220					
Gln	Gly	Arg	Ser	Phe	Pro	Pro	Lys	Glu	Val	Arg	Arg	Asp	Tyr	Ser	Lys	
225					230					235					240	
Gly	Ile	Thr	Val	Thr	Lys	Asn	Asp	Gly	Lys	Lys	Asp	Asn	Asn	Lys	Arg	
				245				250						255		
Lys	Thr	Glu	Thr	Lys	Lys	Cys	Thr	Leu	Glu	Lys	Leu	Gln	Glu	Thr	Gly	
		260					265						270			
Lys	Gln	Asn	Val	Ala	Val	Gln	Val	Lys	Ser	Gln	Thr	Gly	Leu	Arg	Lys	
		275					280					285				
Thr	Pro	Val	Ser	Glu	Ala	Arg	Lys	Thr	Pro	Val	Thr	Gln	Thr	Pro	Thr	
	290					295					300					
Gln	Ala	Ser	Asn	Ser	Gln	Phe	Ile	Pro	Ile	His	His	Pro	Gly	Ala	Phe	
305					310					315					320	
Pro	Pro	Leu	Pro	Ser	Arg	Pro	Gly	Phe	Pro	Pro	Pro	Thr	Tyr	Val	Ile	
				325				330						335		
Pro	Pro	Pro	Val	Ala	Phe	Ser	Met	Gly	Ser	Gly	Tyr	Thr	Phe	Pro	Ala	
			340					345					350			
Gly	Val	Ser	Val	Pro	Gly	Thr	Phe	Leu	Gln	Pro	Thr	Ala	His	Ser	Pro	
		355					360					365				
Ala	Gly	Asn	Gln	Val	Gln	Ala	Gly	Lys	Gln	Ser	His	Ile	Pro	Tyr	Ser	
	370					375					380					
Gln	Gln	Arg	Pro	Ser	Gly	Pro	Gly	Pro	Met	Asn	Gln	Gly	Pro	Gln	Gln	
385					390					395					400	
Ser	Gln	Pro	Pro	Ser	Gln	Gln	Pro	Leu	Thr	Ser	Leu	Pro	Ala	Gln	Pro	
				405				410						415		
Thr	Ala	Gln	Ser	Thr	Ser	Gln	Leu	Gln	Val	Gln	Ala	Leu	Thr	Gln	Gln	
			420					425					430			
Gln	Gln	Ser	Pro	Thr	Lys	Ala	Val	Pro	Ala	Leu	Gly	Lys	Ser	Pro	Pro	
		435					440					445				
His	His	Ser	Gly	Phe	Gln	Gln	Tyr	Gln	Gln	Ala	Asp	Ala	Ser	Lys	Gln	
	450					455				460						
Leu	Trp	Asn	Pro	Pro	Gln	Val	Gln	Gly	Pro	Leu	Gly	Lys	Ile	Met	Pro	
465					470					475					480	
Val	Lys	Gln	Pro	Tyr	Tyr	Leu	Gln	Thr	Gln	Asp	Pro	Ile	Lys	Leu	Phe	
				485				490						495		
Glu	Pro	Ser	Leu	Gln	Pro	Pro	Val	Met	Gln	Gln	Gln	Pro	Leu	Glu	Lys	
			500					505					510			
Lys	Met	Lys	Pro	Phe	Pro	Met	Glu	Pro	Tyr	Asn	His	Asn	Pro	Ser	Glu	
		515					520					525				
Val	Lys	Val	Pro	Glu	Phe	Tyr	Trp	Asp	Ser	Ser	Tyr	Ser	Met	Ala	Asp	
	530					535					540					
Asn	Arg	Ser	Val	Met	Ala	Gln	Gln	Ala	Asn	Ile	Asp	Arg	Arg	Gly	Lys	
545					550					555					560	
Arg	Ser	Pro	Gly	Val	Phe	Arg	Pro	Glu	Gln	Asp	Pro	Val	Pro	Arg	Met	

				565					570					575			
Pro	Phe	Glu	Lys	Ser	Leu	Leu	Glu	Lys	Pro	Ser	Glu	Leu	Met	Ser	His		
			580					585					590				
Ser	Ser	Ser	Phe	Leu	Ser	Leu	Thr	Gly	Phe	Ser	Leu	Asn	Gln	Glu	Arg		
		595					600					605					
Tyr	Pro	Asn	Asn	Ser	Met	Phe	Asn	Glu	Val	Tyr	Gly	Lys	Asn	Leu	Thr		
	610					615					620						
Ser	Ser	Ser	Lys	Ala	Glu	Leu	Ser	Pro	Ser	Met	Ala	Pro	Gln	Glu	Thr		
625					630					635					640		
Ser	Leu	Tyr	Ser	Leu	Phe	Glu	Gly	Thr	Pro	Trp	Ser	Pro	Ser	Leu	Pro		
				645					650					655			
Ala	Ser	Ser	Asp	His	Ser	Thr	Pro	Ala	Ser	Gln	Ser	Pro	His	Ser	Ser		
			660					665					670				
Asn	Pro	Ser	Ser	Leu	Pro	Ser	Ser	Pro	Pro	Thr	His	Asn	His	Asn	Ser		
		675					680					685					
Val	Pro	Phe	Ser	Asn	Phe	Gly	Pro	Ile	Gly	Thr	Pro	Asp	Asn	Arg	Asp		
	690					695					700						
Arg	Arg	Thr	Ala	Asp	Arg	Trp	Lys	Thr	Asp	Lys	Pro	Ala	Met	Gly	Gly		
705					710					715					720		
Phe	Gly	Ile	Asp	Tyr	Leu	Ser	Ala	Thr	Ser	Ser	Ser	Glu	Ser	Ser	Trp		
			725					730						735			
His	Gln	Ala	Ser	Thr	Pro	Ser	Gly	Thr	Trp	Thr	Gly	His	Gly	Pro	Ser		
		740					745						750				
Met	Glu	Asp	Ser	Ser	Ala	Val	Leu	Met	Glu	Ser	Leu	Lys	Ser	Ile	Trp		
	755					760					765						
Ser	Ser	Ser	Met	Met	His	Pro	Gly	Pro	Ser	Ala	Leu	Glu	Gln	Leu	Leu		
	770				775						780						
Met	Gln	Gln	Lys	Gln	Lys	Gln	Gln	Arg	Gly	Gln	Gly	Thr	Met	Asn	Pro		
785				790					795					800			
Pro	His																

<210> 6

<211> 756

<212> PRT

<213> Homo Sapiens

<400> 6

Met	Ser	Phe	Leu	Gly	Ile	Leu	Cys	Lys	Cys	Pro	Leu	Gln	Asn	Glu	Ser		
1			5					10					15				
Gln	Glu	Glu	Ser	Tyr	Asn	Ala	Tyr	Pro	Leu	Pro	Ala	Val	Lys	Val	Ser		
		20					25					30					
Met	Asp	Trp	Leu	Arg	Leu	Arg	Pro	Arg	Val	Phe	Gln	Glu	Ala	Val	Val		
	35					40					45						
Asp	Glu	Arg	Gln	Tyr	Ile	Trp	Pro	Trp	Leu	Ile	Ser	Leu	Leu	Asn	Ser		
50					55					60							
Phe	His	Pro	His	Glu	Glu	Asp	Leu	Ser	Ser	Ile	Ser	Ala	Thr	Pro	Leu		
65				70					75					80			
Pro	Glu	Glu	Phe	Glu	Leu	Gln	Gly	Phe	Leu	Ala	Leu	Arg	Pro	Ser	Phe		
			85					90					95				
Arg	Asn	Leu	Asp	Phe	Ser	Lys	Gly	His	Gln	Gly	Ile	Thr	Gly	Asp	Lys		
	100					105						110					
Glu	Gly	Gln	Arg	Arg	Ile	Arg	Gln	Gln	Arg	Leu	Ile	Ser	Ile	Gly			
	115				120						125						
Lys	Trp	Ile	Ala	Asp	Asn	Gln	Pro	Arg	Leu	Ile	Gln	Cys	Glu	Asn	Glu		
130					135					140							
Val	Gly	Lys	Leu	Leu	Phe	Ile	Thr	Glu	Ile	Pro	Glu	Leu	Ile	Leu	Glu		
145				150					155					160			
Asp	Pro	Ser	Glu	Ala	Lys	Glu	Asn	Leu	Ile	Leu	Gln	Glu	Thr	Ser	Val		
			165					170					175				
Ile	Glu	Ser	Leu	Ala	Ala	Asp	Gly	Ser	Pro	Gly	Leu	Lys	Ser	Val	Leu		

180										185				190			
Ser	Thr	Ser	Arg	Asn	Leu	Ser	Asn	Asn	Cys	Asp	Thr	Gly	Glu	Lys	Pro		
		195					200					205					
Val	Val	Thr	Phe	Lys	Glu	Asn	Ile	Lys	Thr	Arg	Glu	Val	Asn	Arg	Asp		
	210					215					220						
Gln	Gly	Arg	Ser	Phe	Pro	Pro	Lys	Glu	Val	Lys	Ser	Gln	Thr	Gly	Leu		
225					230					235					240		
Arg	Lys	Thr	Pro	Val	Ser	Glu	Ala	Arg	Lys	Thr	Pro	Val	Thr	Gln	Thr		
				245					250					255			
Pro	Thr	Gln	Ala	Ser	Asn	Ser	Gln	Phe	Ile	Pro	Ile	His	His	Pro	Gly		
			260					265					270				
Ala	Phe	Pro	Pro	Leu	Pro	Ser	Arg	Pro	Gly	Phe	Pro	Pro	Pro	Thr	Tyr		
		275					280					285					
Val	Ile	Pro	Pro	Pro	Val	Ala	Phe	Ser	Met	Gly	Ser	Gly	Tyr	Thr	Phe		
	290					295					300						
Pro	Ala	Gly	Val	Ser	Val	Pro	Gly	Thr	Phe	Leu	Gln	Pro	Thr	Ala	His		
305					310					315					320		
Ser	Pro	Ala	Gly	Asn	Gln	Val	Gln	Ala	Gly	Lys	Gln	Ser	His	Ile	Pro		
				325					330					335			
Tyr	Ser	Gln	Gln	Arg	Pro	Ser	Gly	Pro	Gly	Pro	Met	Asn	Gln	Gly	Pro		
			340					345					350				
Gln	Gln	Ser	Gln	Pro	Pro	Ser	Gln	Gln	Pro	Leu	Thr	Ser	Leu	Pro	Ala		
		355					360					365					
Gln	Pro	Thr	Ala	Gln	Ser	Thr	Ser	Gln	Leu	Gln	Val	Gln	Ala	Leu	Thr		
	370					375					380						
Gln	Gln	Gln	Gln	Ser	Pro	Thr	Lys	Ala	Val	Pro	Ala	Leu	Gly	Lys	Ser		
385					390					395					400		
Pro	Pro	His	His	Ser	Gly	Phe	Gln	Gln	Tyr	Gln	Gln	Ala	Asp	Ala	Ser		
				405					410					415			
Lys	Gln	Leu	Trp	Asn	Pro	Pro	Gln	Val	Gln	Gly	Pro	Leu	Gly	Lys	Ile		
			420					425					430				
Met	Pro	Val	Lys	Gln	Pro	Tyr	Tyr	Leu	Gln	Thr	Gln	Asp	Pro	Ile	Lys		
		435					440					445					
Leu	Phe	Glu	Pro	Ser	Leu	Gln	Pro	Pro	Val	Met	Gln	Gln	Gln	Pro	Leu		
	450					455					460						
Glu	Lys	Lys	Met	Lys	Pro	Phe	Pro	Met	Glu	Pro	Tyr	Asn	His	Asn	Pro		
465					470					475					480		
Ser	Glu	Val	Lys	Val	Pro	Glu	Phe	Tyr	Trp	Asp	Ser	Ser	Tyr	Ser	Met		
				485					490					495			
Ala	Asp	Asn	Arg	Ser	Val	Met	Ala	Gln	Gln	Ala	Asn	Ile	Asp	Arg	Arg		
			500					505					510				
Gly	Lys	Arg	Ser	Pro	Gly	Val	Phe	Arg	Pro	Glu	Gln	Asp	Pro	Val	Pro		
		515					520					525					
Arg	Met																

<210> 11
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 11
tcgagcggcc gcccgggcag gt

22

<210> 12
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 12
agcgtggtcg cggccgaggt

20

<210> 13
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 13
ctgttcctgt tggccgagtc

20

<210> 14
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 14
cgatgcattg ttatcattaa c

21

<210> 15
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 15
caccctgagc agtcatcac

20

<210> 16
<211> 20
<212> DNA
<213> Artificial Sequence

<220>

<223> primer

<400> 16

ggccagggtc acatttcacc

20

<210> 17

<211> 17

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 17

gtaaaacgac ggccagt

17

<210> 18

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 18

caggaaacag ctatgacc

18

<210> 19

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 19

gcttggaaaa gttgagcc

18

<210> 20

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 20

ctgggtctga gtcttagc

18

<210> 21

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 21

tgtcccagga acctttcttc a

21

<210> 22

<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 22
cccagcttgc acctggttt

19

<210> 23
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 23
ctacagctca ctctccag

18

<210> 24
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 24
atgaccacc aatggaagca

20

<210> 25
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 25
gcctggatgg ttcaggataa tc

22

<210> 26
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 26
ctggcttcac tgctc

15

<210> 27
<211> 42
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 27
agctctctcg agatgtcttt tcttggtcatc ctgtgcaagt gt

42

<210> 28
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 28
agctctaagc tttcagtgtg gagggttcat ggtgccttg

39

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ BLACK BORDERS
- ☐ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES
- ☒ FADED TEXT OR DRAWING
- ☒ BLURRED OR ILLEGIBLE TEXT OR DRAWING
- ☐ SKEWED/SLANTED IMAGES
- ☐ COLOR OR BLACK AND WHITE PHOTOGRAPHS
- ☐ GRAY SCALE DOCUMENTS
- ☒ LINES OR MARKS ON ORIGINAL DOCUMENT
- ☒ REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY
- ☐ OTHER: _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.